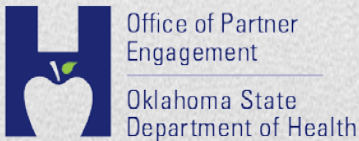




Impact of a 4-Day School Week on Student Academic Performance, Food Insecurity, and Youth Crime

Office of Partner Engagement Rapid Health Impact Assessment



Impact of a 4-Day School Week on Student Academic Performance, Food Insecurity, and Juvenile Crime

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EXECUTIVE SUMMARY

A Health Impact Assessment (HIA) utilizes a variety of data sources and analytic methods to evaluate the consequences of proposed or implemented policy on health.¹ A rapid (HIA) was chosen to research the impact of the four-day school week on youth. The shift to a four-day school week was a strategy employed by many school districts in Oklahoma to address an \$878 million budget shortfall, subsequent budget cuts, and teacher shortages. The HIA aimed to assess the impact of the four-day school week on *student academic performance, food insecurity, and juvenile crime*.

As school districts must address budget cuts, district leaders are compelled to make tough decisions on how best to allocate shrinking resources to meet expenditures. Oklahoma school districts have increasingly switched from the traditional Monday through Friday school week to a four-day school schedule. The four-day school week has been used for many years by rural school districts in western states such as Colorado and Wyoming. Generally, schools must increase the length of the school day to meet state-mandated minimum instructional hour requirements.²

The rationale for the modified schedule is to decrease transportation and operating costs in rural school districts. For example, the Webster County school district in Kentucky reported substantial savings on transportation, utility, and insurance costs after adopting a four-day schedule of Tuesday through Friday.³ In addition, adopting this modified school schedule helped the Peach County, Georgia school district reduce spending on cafeteria and custodial workers in addition to utilities and transportation expenses.⁴

¹ Impact. European Policy Health Impact Assessment, A Guide. Liverpool, 2004.

² Anderson, D. Mark and Walker, Mary Beth. *Does Shortening the School Week Impact Student Performance? Evidence from the Four-Day School Week*. Association for Education and Finance Policy, 2015.

³ Ibid.

⁴ Herring, Chris. Schools' New Math: The Four-Day Week. *Wall Street Journal*, March 8, 2010.

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Switching from the traditional five-day school week has a number of implications that should be considered in order to understand the cost-benefit impact of implementing a four-day school schedule. For example, most school districts (rural) in Colorado reported that the four-day school week policy yields financial savings. However, it is unknown if the school districts conducted a cost analysis of expenditures to confirm financial savings. Research suggests other risks may have spillover effects on communities. Examples of risks that could also be present include teens out of school on Friday might engage in crime or other risky behaviors⁵, or children participating in free or reduced priced school meal programs could experience increased food insecurity. Educators and parents have also expressed concern that the four-day week adversely affects student achievement, while others have reported higher average grade points and test scores after switching from the traditional five-day week. Anecdotally, results and opinions are mixed.⁶

Researchers, D. Mark Anderson and Mary Beth Walker conducted a study using data from the Colorado Department of Education that looked at fourth and fifth grades math and reading scores. Their empirical findings are limited to impacts in smaller and more rural districts. Wider use of the policy across more densely populated geographical areas would be required to gain a better understanding of the effects. They also asserted, “Up to now, no research has used econometric techniques and panel data analyses to estimate the relationship between the four-day school week and academic performance.”⁷ The researchers stated that prior studies on the four-day school week may be biased due to confounding factors that simultaneously correlate with student academic performance and the decision by a school district to adopt the four-day school week.

⁵ Anderson, D. Mark and Walker, Mary Beth. *Does Shortening the School Week Impact Student Performance? Evidence from the Four-Day School Week*. Association for Education and Finance Policy, 2015.

⁶ Ibid.

⁷ Anderson, D. Mark and Walker, Mary Beth. *Does Shortening the School Week Impact Student Performance? Evidence from the Four-Day School Week*. Association for Education and Finance Policy, 2015.

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Summary of Findings

An extensive review of literature and stakeholder engagement on these topic areas was mostly inconclusive or did not reveal any clear-cut evidence to identify effects of the four-day school week on student outcomes – academic performance, food insecurity or juvenile crime. Moreover, there are many published articles about the pros and cons of the four-day school week, but a lack of comprehensive research is available on the practice.

Impact Analysis: Four-Day School Week*				
Initial Health Outcomes	Direction and Extent of Impact	Likelihood	Distribution	Quality of Evidence
Student Academic Performance	↓↓↓ Small impact on high proportion of students	Possible	Low-income, academically at-risk students are impacted more	▲ At least one study supports direct relationship but most findings are inconclusive
Food Insecurity	↑↑↑↑ Significant impact on high proportion of students	Likely	Low-income/ disadvantaged students/ families impacted more	▲▲▲ Many studies that support direct relationship; supporting local data
Juvenile Crime	↑↑↑ Small impact on high proportion of students	Possible	Low-income students/families impacted more	▲ At least one study that supports an indirect relationship

*Impact Analysis Key:

Direction and Extent of Impact

Significant impact on many: ↑↑↑↑ (increases or improves) or ↓↓↓↓ (decreases or makes worse)
 Significant impact for few or small impact on many: ↑↑↑ or ↓↓↓
 Moderate impact on medium number: ↑↑ or ↓↓
 Small impact on few: ↑ or ↓

Likelihood of Impact

Likely = it is likely that impacts will occur as a result of the program
 Possible = It is possible that impacts will occur as a result of the program
 Unlikely = It is unlikely that impacts will occur as a result of the program
 Uncertain = It is unclear if impacts will occur as a result of the program

Distribution of Impact

One or more subpopulations impacted more or equal impacts

Quality of Evidence

Many studies that support a direct relationship: ▲▲▲
 Several studies that support a direct relationship or many studies that support an indirect relationship = ▲▲

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HIA Recommendations

The majority of articles showed little evidence of an overall impact on academic performance positive or negative. Most of the data reviewed related to food insecurity and academics. According to Feeding America, “Studies have found that food insecurity has been associated with health problems for children that may hinder their ability to function normally and participate fully in school and other activities.” Data and research papers related to juvenile crime and a four-day school week were limited. In addition, the literature revealed no information relative to special populations or urban and suburban districts.⁸

Recommendations include:

- Identify specific criteria to evaluate policy specific to areas of interest;
- Compile information about four-day school weeks, including other districts’ or other districts in contiguous states’ experiences with four-day school weeks; and
- Conduct research on the actual practice and examine existing models. Collect data for Oklahoma schools that have implemented the four-day school week and similar schools that have not.

INTRODUCTION

The shift to a four-day school week was a strategy employed by many school districts in Oklahoma to address an \$878 million budget shortfall, subsequent budget cuts, and teacher shortages. This rapid Health Impact Assessment (HIA) was chosen to research the impact of the four-day school week on student *academic performance, food insecurity and juvenile crime*.

This HIA serves to provide guidance for state agencies, school districts, policy makers, parents and other stakeholders for leveraging resources efficiently and effectively to produce better outcomes for Oklahoma students. Moreover, the findings may reveal lessons learned that will

⁸ Davy, Wendy L., and Hall, Padric R. Four-Day School Week Literature Review, *Analysis of Available Literature on the Impact of a Four-day School Week*. Peoria Unified School District. February 22, 2015.

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inform other school districts that have plans to implement the four-day school schedule. Last, this HIA connects the assessed indicators of student academic performance, food insecurity and juvenile crime to Oklahoma Governor Mary Fallin's three priority objectives of wealth, health and justice reform (Figure 1).

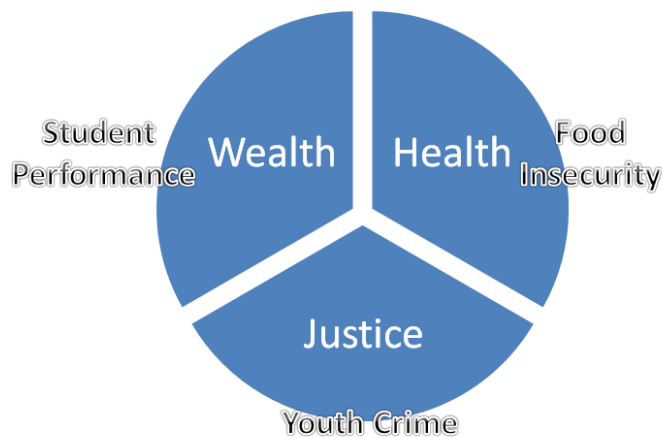


Figure 1: Oklahoma Governor Mary Fallin's three priority areas in alignment with the health indicators for this HIA.

About Health Impact Assessments

The World Health Organization defines Health Impact Assessment (HIA) as “a combination of procedures, methods, and tools by which a policy, programme, or project may be judged as to its potential effects on the health of a population and the distribution of those effects within the population.”⁹ Policy decisions made outside the health sector affect many determinants of health. The HIA process involves the use of data, research, and input from a broad range of decision makers and stakeholders to help shape sound public policy.

HIA studies upstream health determinants in a comprehensive way rather than focusing on a single-risk factor (e.g., environmental, economic, social). HIA uses a variety of data sources, including qualitative and quantitative analysis, along with input from community stakeholders to identify health concerns and determine potential effects on local populations, particularly

⁹ World Health Organization Website. Health Impact Assessment (HIA), Main definition. <http://www.who.int/hia/en/>. Accessed April 2017.

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vulnerable groups such as children, low-income families, and seniors. HIA aims to provide practical, evidence-based recommendations to reduce adverse health impacts, promote benefits, and monitor the health impacts. Moreover, HIA is an effective means of empowering and engaging affected stakeholders to make sound choices about alternatives and improvements to protect and promote health.

The HIA Process – Essential Tasks

Step 1: Background and Screening. HIA team and stakeholders determine the need and value (decision making) of an HIA – can it be completed within a reasonable timeframe.

Step 2: Scoping. HIA team determines which health impacts to evaluate, methods of analysis; develops work plan; assigns roles and responsibilities.

Step 3: Assessment. Provides a profile of existing health conditions; an evaluation of potential health impacts.

Step 4: Recommendations & Implementation Strategies. For each identified health impact, propose evidence-based recommendations gathered from experts and prioritized by stakeholders to reduce negative and increase positive health impacts.

Step 5: Reporting. Develop HIA report and communicate findings and recommendations.

Step 6: Evaluation and Monitoring. Track impacts of HIA on decision-making process and implementation of decision as well as the impacts of the decision on health outcomes.

BACKGROUND AND SCREENING

To determine the need and value of the assessment, the Oklahoma State Department of Health, Office of Partner Engagement (OPE) team established that the HIA would 1) have the potential to impact decision making; 2) address one or more significant health and/or social

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issues in our state; and 3) promote health equity. This rapid HIA was conducted December 2016 to May 2017.

History of the Four-Day School Week

The first schools to adopt a four-day school week were in New Mexico in the early 1970s, primarily as a response to an energy crisis that sharply increased the cost of transportation and utilities.¹⁰ During the late 1970s and early 1980s, the oil crisis caused many rural schools to consider and implement a four-day school week due to the increase in fuel expenses and the cost of transporting students in rural areas.¹¹ The amount of time some students were spending on a bus commuting to and from school was another contributing factor. School districts in Colorado have been using a four-day school schedule for over 35 years. As of October 1, 2016, 97 Oklahoma school districts (roughly 19%) have implemented a four-day school week in 219 school sites as indicated in Figure 2.¹²

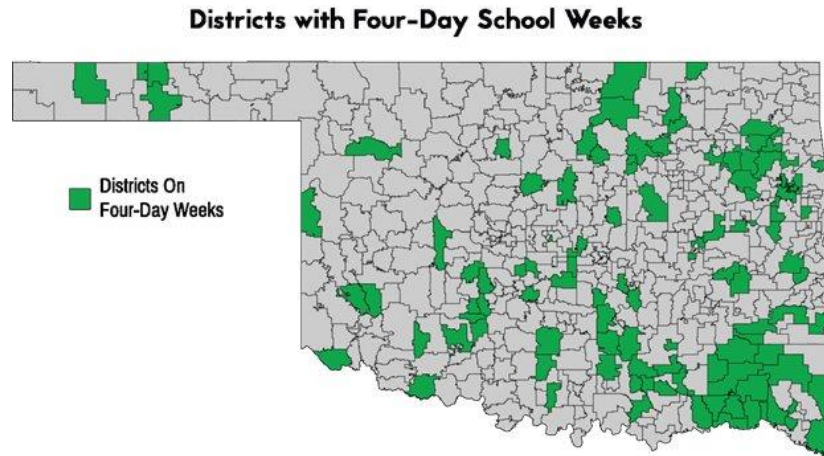


Figure 2: Oklahoma School Districts with Four-Day School Weeks adopted from the 2017 State Report on Expanded Learning.

¹⁰ Gaines, Gale F. 2008. *Focus on the School Calendar: The Four-Day School Week*. Atlanta, GA: Southern Regional Education Board Focus Series Reports.

¹¹ Davy, Wendy L. & Hall, Padric R. Four-Day School Week – Literature Review: *Analysis of Available Literature on the Impact of a Four-day School Week*. Peoria Unified School District. February 22, 2015.

¹² Oklahoma Partnerships for Expanded Learning. State Report on Expanded Learning 2017. http://opelok.org/index_18_1018671473.pdf. Accessed May 2017.

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Generally, the four days are lengthened to meet state-mandated minimum instructional hour requirements.¹³ Montana and Idaho, for example, require a minimum number of instructional hours rather than a required number of instructional days. This gives school districts leeway to adjust their schedules and adopt a four-day week without having to get additional special permission. Other states, such as Oklahoma and Kentucky, have provisions for both a minimum of instructional days and hours.¹⁴ Oklahoma House Bill 1864, signed by Governor Brad Henry on April 27, 2009, allows a school to measure instructional time in hours instead of days.¹⁵ Therefore, the requirement can be met through fewer days of greater length. Oklahoma requires either a minimum of 1,080 instructional hours or 180 instructional days.

Cost Saving Strategy

The Oklahoma State Department of Education (OSDE) conducted a study of 16 school districts that adopted a four-day school week at the beginning of Fiscal Year (FY) 2011-2012: Asher, Avant, Barnsdall, Battiest, Fort Towson, Liberty (Tulsa County), Lone Wolf, Midway, Moyers, Prue, Rattan, Sharon-Mutual, Straight, Swink, Valliant, and Wilson. A cost analysis of expenditures (food, support staff, transportation, utilities) was conducted beginning FY 2008-2009 through FY 2015-2016 to determine whether district average expenditures decreased after switching to a four-day school week. Nine of the 16 school districts spent more money, on average after adopting a four-day school week. In addition, eight of the nine school districts experienced a reduction in Weighted Average Daily Membership (WADM). The increased cost in expenditures for these eight districts could be attributed to an increase in student numbers. On average, the remaining seven districts expended less money after switching to a four-day schedule. Four of the seven districts experienced a reduction in WADM, which could account for the decrease in student numbers. Three districts expended less money while WADM

¹³ Ibid.

¹⁴ Plucker, Jonathan A., Cierniak, Katherine, & Chamberlin, Molly. "The Four-Day School Week: Nine Years Later." Center For Evaluation & Education Policy. Education Policy Brief, Vol. 10(6), Fall 2012.

¹⁵ National Conference of State Legislators. Four Day School Weeks.

<http://www.ncsl.org/research/education/school-calendar-four-day-school-week-overview.aspx> . Accessed April 2017.

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increased. The findings do not clearly show that district savings resulted from switching to a four-day school week from a traditional Monday through Friday schedule. Additional study is needed to determine specific factors that may have contributed to these savings.¹⁶ When expenditures for all 16 districts were combined, findings showed on average, that school districts spent \$4,523 more on utilities, \$2,714 less on food, \$1,971 less on transportation, and \$8,542 more on support staff after adopting a four-day school week than they expended before the switch in school schedule. Therefore, no conclusive evidence was uncovered to support the theory that a four-day school week saves money.¹⁷

The most common benefit cited in the literature is financial savings, although such savings vary according to how districts use the *unscheduled day*. Some districts were reported to have redirected the money saved to reading programs, tutoring, preschool programs, and summer school programs for students needing additional help. School administration reported significant cost savings to their budgets when a four-day school week was implemented. One school administrator tracked cost savings in an Excel spreadsheet and equated the savings to that of two school classroom aides. Attendance increased and teacher absenteeism decreased with the adoption of a four-day school week. School administrators attributed this to the extra day for teachers and parents to schedule outside appointments.

SCOPING

To determine the potential impacts of school districts switching to the four-day school week on student academic performance, food insecurity, and juvenile crime, research methods for this HIA included an extensive literature review and key informant interviews with a spectrum of community stakeholders. The OPE team conducted a search for place-based practice of the four-week schedules, reviewed scholarly or peer-reviewed literature, searched relevant publications, policy briefs, fact sheets, research briefs, and reports beyond the topic-specific

¹⁶ Oklahoma State Department of Education, Champion Excellence. "Analysis of Expenditures of Districts on a Four-Day School Week. March 1, 2017.

¹⁷ Ibid.

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sources and peer-reviewed journals. Examples include National Kids Count, U.S. Department of Education, Office of Civil Rights, Center for Juvenile Justice Reform, the Oklahoma Policy Institute and Google Scholar. The OPE team also reviewed about 40 or more peer-reviewed articles, including meta-analyses and systematic reviews, and reports.

In addition, the team conducted interviews (structured and unstructured), with 16 individuals to gather input from affected stakeholder groups including state and local education, the Office of Juvenile Affairs, law enforcement, school administration, teachers, school nurses, parents, students, non-profits and after-school program personnel as noted in Figure 3. One interview and discussion with stakeholders was held during an Oklahoma Turning Point Council (OTPC) Policy Committee meeting. The stakeholders interviewed were involved with and/or impacted by either a four-day or five-day school schedule. They devoted their time to research and gather necessary data to answer questions.



Figure 3: Stakeholder Groups Engaged

Student Academic Performance

The 2017 Quality Counts K-12 Achievement Index ranks Oklahoma 47th among the 50 states and District of Columbia in three education quality indicators: 1) Chance-for-Success or the role

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that education plays in promoting positive outcomes across an individual's lifetime; 2) School Finance including school spending patterns and the distribution of funding across school districts across the state; and 3) K-12 Achievement including reading and math performance, high school graduation rates and results of Advance Placement exams. Oklahoma scored 68.3 out of a 100 possible points, earning an overall D+ grade. The national average cited is 74.2 points or a grade of C.¹⁸

The Oklahoma State Department of Education (OSDE) implemented an A-F School Report Card Grading System, adopted into law by the Oklahoma Legislature in 2011. This grading system provides information on student performance at particular schools and incentivizes schools to strive for and reach high levels of college and career-readiness. The A-F Report Card Grading System is comprised of two primary components, each worth one-half of the overall grade: student performance and student growth. In addition, schools have the opportunity to earn up to 10 bonus points added to the final grade awarded for achievements including: in school attendance rate; dropout rate; high school graduation rate; advanced coursework; college entrance exams; eighth-grade graduation rate; and overall end-of-instruction exam performance.

For the 2015-16 school year, 37 percent of Oklahoma schools earned outstanding or above-average achievement with the majority of students demonstrating at least grade-level proficiency represented by an "A" or "B" on the A-F School Grading System (Figure 4). However, an overwhelming 30 percent of Oklahoma schools received a "D" or "F" indicating below-average performance in which a substantial number of students are not meeting grade-level expectations.¹⁹ Given the status of reportable student outcomes in Oklahoma, the impact

¹⁸ Quality Counts 2017: State Highlights Report. Oklahoma. Education Week.
<http://www.edweek.org/ew/qc/2017/state-highlights/index.html>. Accessed May 2017.

¹⁹ Oklahoma State Department of Education. *A to F Report Card Quick Reference Guide*.
<http://sde.ok.gov/sde/sites/ok.gov.sde/files/documents/files/AFReportCardQuickReferenceGuide.pdf>. May 2017.

on academic performance is an important factor in the decision for a district to adopt a four-day school week.

Oklahoma A to F School Grading System *School Letter Grades for the 2015-16 School Year*

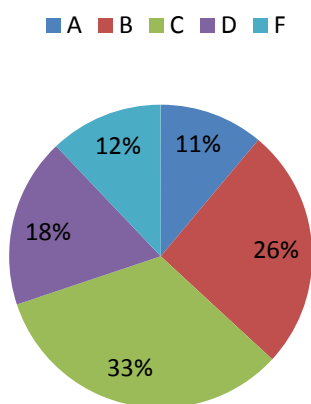


Figure 4: Oklahoma A to F School Grading System School Letter Grades for the 2015-16 School Year

Food Insecurity

Food insecurity includes both inadequate quantity and quality of food. According to the United States Department of Agriculture, 15.5 percent of Oklahoma households experienced food insecurity in 2015.²⁰ Moreover, the Oklahoma food insecurity rate is significantly higher than the national average.²¹ Hunger is a major issue in Oklahoma, and with the decline of the oil and gas industry, state budget cuts, and upward number of schools switching to a four-day school week, ensuring children and families have consistent access to food throughout the year is an ongoing concern.

Taking into consideration that schools represent a major source of food and nutrition for Oklahoma children, the question emerges concerning the potential impact of a four-day week on food insecurity for students and their families. There are 436,000 children in Oklahoma (62%

²⁰ Hunger Free Oklahoma. "Ending Hunger in Oklahoma: An assessment of food insecurity and resources in Oklahoma."

²¹ Ibid.

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of students) that participate in the National School Lunch Program,²² a consistent, reliable source of food available only during the school year. Additionally, 224,700 children in Oklahoma participate in the National School Breakfast Program.²³

The Community Food Bank of Eastern Oklahoma *Backpack Program* has 267 sites. During 2016, the Backpack Program distributed 10,100 backpacks of food each week and a total of 290,315 backpacks. The *Backpack Program* provides nutritious, kid-friendly snacks to elementary age, food-insecure students to take home on the weekends. Backpack meals help bridge the gap from Friday lunch to Monday breakfast.²⁴ The Regional Food Bank of Oklahoma initially piloted *Food for Kids* in 2003, after an Oklahoma City elementary school student fainted one Monday morning while waiting in the school lunch line from lack of food over the weekend. The Regional Food Bank delivers pre-assembled food sacks and backpacks to participating schools at no cost to the school or the child. During the 2015-2016 school year, the *Backpack Program* served 18,816 elementary school students attending 512 schools in 53 central and western Oklahoma counties, providing more than two million meals for chronically hungry children.²⁵

Juvenile Crime

The specific health issues and impacts addressed include risky behaviors such as, juvenile crime, adolescent pregnancy, adolescent abuse of alcohol or drugs, and vandalism. Populations identified included children raised in single-parent households, those raised by grandparents, homeless youth, low socio-economic status children, those with juvenile justice or the child welfare involvement, and those with behavioral and mental health issues.

Juvenile Crime - habitual committing of criminal acts or offenses by a young person, especially one below the age at which criminal prosecution is possible. A young person

²² Regional Food Bank of Oklahoma. Hunger in Oklahoma Report, 2014. <https://www.regionalfoodbank.org/uploads/hungerinamerica2015.pdf>. Accessed March 2017.

²³ Ibid.

²⁴ Community Food Bank of Eastern Oklahoma, Annual Report 2016. <http://okfoodbank.org/wp/wp-content/uploads/2017/03/2016-Digital-Annual-Report.pdf>. Accessed March 2017.

²⁵ Regional Food Bank of Oklahoma, Food for Kids Backpack Program. <https://www.regionalfoodbank.org/programs/backpack-grams>. Accessed March 2017.

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is defined as being between ages 10 and 18. Petty crimes committed by minors are called “delinquent acts.”

Adolescent Pregnancy – birth rates of women and girls ages 15-19. A report from the National Center for Health Statistics shows Oklahoma ranked 2 out of 51 (50 states plus the District of Columbia) on final 2014 teen birth rate (with 1 representing the highest rate and 51 representing the lowest). The teen birth rate (births per 1,000 females aged 15-19, 2014) in Oklahoma was 38.5 compared to 24.2 for the United States. Females aged 15-17 teen birth rates (births per 1,000 females aged 15-19, 2014) were 16.9 compared to 10.9 for the United States and females aged 18-19 were 71.8 for the state compared to 43.8 for the United States.²⁶

Adolescent Abuse of Alcohol or Drugs – adolescents, age 12 to 17 who abused alcohol or drugs in the past two years as reported in Oklahoma. The 2015 Oklahoma Youth Risk Behavior Survey (YRBS) indicates that among public high school students:²⁷

Alcohol Use

- 64% have ever drank alcohol
- 15% drank alcohol for the first time before 13 years of age
- 27% drank alcohol during the 30 days before the survey
- 17% drank five or more drinks in a row within a couple of hours during the 30 days before the survey

Other Drug Use

- 32% have ever used marijuana
- 17% used marijuana during the 30 days before the survey

²⁶ Hamilton BE, Martin JA, Osterman MJ, et al. Births: Final data for 2014. National vital statistics reports; vol 64 no 12. Hyattsville, MD: National Center for Health Statistics. 2015.

²⁷ Oklahoma State Department of Health. Maternal and Child Health. 2015 Youth Risk Behavior Survey Data and Reports. Alcohol and Other Drug Use. <https://www.ok.gov/health2/documents/Alcohol%20Use%20-%20YRBS%202015%20with%20Solutions.pdf>. Accessed April 2017.

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- 14% have ever taken prescription drugs without a doctor's prescription
- 15% were offered, sold, or given an illegal drug on school property during the 12 months before the survey

Mental Health and Cognitive Development – children age 2 to 17 with a parent who reports that a doctor has told them their child has autism, developmental delays, depression or anxiety, attention-deficit hyperactivity disorder (ADHD), or behavioral/conduct problems. During the years 2011-2012, 19% or 153,000 children in Oklahoma were reported to have one or more emotional, behavior or developmental conditions.²⁸

Vandalism – an act involving deliberate destruction of or damage to public or private property.

ASSESSMENT AND FINDINGS

Academic Performance

There are many published articles about the pros and cons of the four-day school week, but there is little research available on the practice. The majority of research studies, interviews, briefs, and articles all emphasized the lack of comprehensive studies on the impact of a four-day school week and academic achievement. Many of the studies are qualitative in nature with more perception and opinions than statistical analysis.²⁹ Much of the information available is based on surveys of stakeholders, such as teachers, students, and parents or on newspaper interviews with district superintendents.³⁰ Because of the size of many of the school districts using a four-day schedule, study validity is questionable. There is a decided lack of evidence

²⁸ National KIDS COUNT. Years 2011-2012.

²⁹ Davy, Wendy L. & Hall, Padric R. "Four-Day School Week Literature Review" – *Analysis of Available Literature on the Impact of a Four-day School Week*. Peoria Unified School District. February 22, 2015.

³⁰ Gaines, Gale F. 2008. *Focus on the School Calendar: The Four-Day School Week*. Atlanta, GA: Southern Regional Education Board Focus Series Reports.

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that the four-day week helps or hurts student achievement – anecdotal information seems to point merely to a “lack of harm” where student achievement is concerned.³¹

Several Oklahoma school superintendents were interviewed and provided feedback on their experience using a four-day school week. One commented that the shortened week makes it important for teachers to employ time-management techniques to ensure that instruction time is used most efficiently. Another mentioned that with an extended day, classes were longer and actually afforded more time for instruction. The third one provided examples of teachers using “brain” breaks during the extended instruction period to support students’ attention span and higher testing averages. However, the school district has not used the four-day schedule long enough to have extensive evidence to support these claims.

Midway Public Schools (Oklahoma Unified School District) implemented a four-day school week six years ago. The average test scores improved at both the elementary and high school levels. The superintendent stated that additional tutoring has been implemented and new staff was brought in to improve instruction for math and science which may have contributed to test score improvement.

Food Insecurity

Food insecurity includes both inadequate quantity and quality of food. Children require not only enough calories but also enough nutrients for proper development and growth. Improper or stunted growth can have a variety of medical and developmental implications. Malnutrition and food insecurity can affect children's educational outcomes, family life, and overall health. It has been linked to worse development outcomes for children, such as impaired social and reading skills. Food insecurity affects the health and well-being of children in several ways. It is a major threat to "growth, health, cognitive, and behavioral potential," and most behavioral, emotional, and academic problems are more prevalent among hungry children than non-hungry children. Hungry children are much more likely to have clinical levels of psychosocial

³¹ Ibid.

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dysfunction, and they show more anxious, irritable, aggressive, and oppositional behaviors than their peers whose families are low-income but food-secure.

Many teachers and counselors reported that reducing the school week by a day means one more day without a reliable meal. Children with parents working Monday through Friday may be left without ready access to sources of food.

Interviews with community and school leadership revealed that many schools have addressed this need by leveraging community partnerships to ensure these students have backpacks of food or access to community food sources for the extra day they are not in school. In addition, backpack programs exist in schools for students that need food to take home over the long weekend. Several schools also have food pantries for students and families that may be in need of food. A school counselor interviewed for this HIA commented, ‘schools should not be expected to bear the full responsibility of ensuring that kids are fed 24/7.’ One superintendent of a rural school district that experimented with a four-day school week in 2014-15 said, “There were kids I firmly believe were leaving school on Thursday and weren’t getting a good meal until Monday morning when we served breakfast again.”³²

A shortened school week may mean that children will go hungry. School meal programs play an important role in keeping students healthy and ready to learn. “In Oklahoma, nearly two out of every three students – more than 400,000 in total – qualify for free or reduced-price school meals.”³³ Thousands of families across the state rely on these meals. Districts participating in the Common Eligibility Provision, which maximizes access to schools meals, report better test scores and fewer behavioral issues.³⁴ The success of the four-day school week seems to depend on how schools and communities use the fifth day. The five-day school schedule helps

³² Tulsa World. Four-day School Weeks: Districts Weighing Benefits, But Hofmeister Says it’s Bad for Kids. November 23, 2015.

³³ Oklahoma Policy Institute. Four-day School Weeks Could Leave thousands of Oklahoma Kids Hungry. April 13, 2016. <https://okpolicy.org/four-day-school-weeks-put-low-income-students-risk-hunger/> . Accessed March 2017.

³⁴ Oklahoma Policy Institute. Issue Brief: Community Eligibility Can Help Oklahoma Schools Hunger-Free. August 20, 2015. <https://okpolicy.org/issue-brief-community-eligibility-can-help-make-oklahoma-schools-hunger-free/> . Accessed March 2017.

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to assure students receive meals five days a week. A major concern related to four-day school weeks is that families could likely experience food insecurity on the extra week day without the “safety-net” support of school nutrition programs.

Juvenile Crime

Data and research papers related to juvenile crime and a four-day school week were limited. Generalized impacts based on interviews and qualitative data showed less in-school discipline referrals and an increase in student attendance by one percentage point in a four-day school week versus a five-day school week. Teachers reported fewer behavioral issues in class. No published literature or statistical data regarding an increase in adolescent pregnancy, adolescent use of alcohol or drugs, or an impact on mental health issues was found. One significant finding relative to juvenile justice involvement and a four-day school week is the minimal amount of data on this topic.

The Office of Juvenile Justice and Delinquency Prevention reports that the majority of juvenile crimes are committed during non-school hours; peaking between 3 p.m. and 6 p.m.³⁵ Assuming that parents work from 9 a.m. to 5 p.m., effectively with a four-day schedule, the number of days during which a student is unsupervised or has unstructured time during these peak hours is reduced. As such, a common belief among parents, policymakers, and school officials is that lengthening the time students are in school or expanding youth programs will keep youth out of trouble.³⁶ Although this is a logical conclusion, not much is known about the extent to which school or youth program participation changes youth criminal behavior in the short-term, and even less is known about the school-crime relationship in rural areas.³⁷

Information from the stakeholder interviews with Office of Juvenile Affairs (OJA) officials and rural law enforcement seemed to conflict. The OJA officials reported that overall, the largest percentage of their caseloads is youth that have been suspended from school. They also

³⁵ Snyder, Howard N. and Sickmund, Melissa. “Juvenile Offenders and Victims: 2006 National Report.” Office of Juvenile Justice and Delinquency Prevention, 2006.

³⁶ Fischer, Stefanie and Argyle, Daniel. “Juvenile Crime and the Four-Day School Week. July 18, 2016

³⁷ Ibid.

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reported that their caseloads increase during summer months when youth are not in school. This leads them to believe that the four-day school week could result in higher numbers of youth engaging in criminal behavior. In contrast, a rural law enforcement officer indicated he had not noticed an increase in youth crime with the adoption of the four-day school week.

One particular study conducted by Stefanie Fischer and Daniel Argyle examined the causal link between school attendance and youth crime.³⁸ The authors stated, “Little is known about the extent to which school schedule changes affect youth criminal behavior in the short-term, if at all, and even less is known on the issue in rural areas.” They studied adoption of the four-day week across rural counties and years in Colorado to examine the causal link between school and youth crime. They learned two aspects of the school-crime relationship that have not been previously studied 1) the effects of a more frequent, long-lasting schedule change on short-term crime and 2) the impact that school has on youth crime in rural areas. Their findings showed that switching all students in a county from a five-day school schedule to a four-day school schedule increases juvenile arrests for property crimes particularly, larceny by about 73%. In addition, larceny and property crimes increased on all days of the week and were not driven by changing from one day to another day, such as shifting from Wednesday to Friday. They also noted several ways that a four-day school week could affect youth crime patterns in a rural area. There may be a decrease in youth crime because students on a four-day school week attend school longer to comply with instructional hour mandates.

The Office of Juvenile Justice and Delinquency Prevention reports that the majority of juvenile crimes are committed during 3 p.m. and 6 p.m.³⁹ Therefore, it is possible that a four-day school week could reduce juvenile crime. On the other hand, switching students to a four-day schedule may increase juvenile crime. These students have one full day off per week; and they are likely unsupervised, especially if their parents or guardians are working.

³⁸ Fischer, Stefanie and Argyle, Daniel. “Juvenile Crime and the Four-Day School Week. July 18, 2016.

³⁹ Snyder, Howard N. and Sickmund, Melissa. *Juvenile Offenders and Victims: 2006 National Report*. Office of Juvenile Justice and Delinquency Prevention, 2006.

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This HIA identified youth with single parents, those being raised by grandparents, family homelessness, and low socio-economic status, as being most vulnerable when switching to a four-day school schedule. Other youth populations identified as being most at-risk were those already involved with the OJA, the courts, and/or the Department of Human Services systems as well as those with mental and behavioral health issues.

There is a lack of literature that links youth crime to a four-day school week. The general finding is that increased education reduces subsequent criminal behavior. Establishing a causal link between youth crime and school attendance is challenging because often unobservable characteristics of an individual that determine school attendance such as patience, risk aversion, or motivation to name a few also influence criminal behavior.⁴⁰

Impact Analysis

An extensive review of literature on student *academic performance, food insecurity and juvenile crime* was mostly inconclusive or did not reveal any clear-cut evidence to identify effects of the four-day school week on student outcomes. The HIA impact analysis of the four-day school week is shown below in Figure 5.

⁴⁰ Fischer, Stefanie and Argyle, Daniel. "Juvenile Crime and the Four-Day School Week. July 18, 2016.

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Impact Analysis: Four-Day School Week				
Initial Health Outcomes	Direction and Extent of Effect	Likelihood	Distribution	Quality of Evidence
Student Academic Performance	 Small impact on high proportion of students	Possible	Low-income, academically at-risk students are impacted more	 At least one study supports direct relationship but most findings are inconclusive
Food Insecurity	 Significant impact on high proportion of students	Likely	Low-income/ disadvantaged students/ families impacted more	 Many studies that support direct relationship; supporting local data
Juvenile Crime	 Small impact on high proportion of students	Possible	Low-income students/families impacted more	 At least one study that supports an indirect relationship



Figure 5: Impact Analysis of the Four-Day School Week



***Impact Analysis Key:**

Direction and Extent of Impact

Significant impact on many:  (increases or improves) or  (decreases or makes worse)

Significant impact for few or small impact on many:  or 

Moderate impact on medium number:  or 

Small impact on few:  or 

Likelihood of Impact

Likely = it is likely that impacts will occur as a result of the program

Possible = It is possible that impacts will occur as a result of the program


Unlikely = It is unlikely that impacts will occur as a result of the program

Uncertain = It is unclear if impacts will occur as a result of the program

Distribution of Impact

One or more subpopulations impacted more or equal impacts

Quality of Evidence

Many studies that support a direct relationship: 

Several studies that support a direct relationship or many studies that support an indirect relationship = 

Other Potential Benefits and Drawbacks for Students, Families and Schools

The list of benefits and drawbacks is extensive for students, families and schools. Benefits cited in the literature include better attendance rates of students and teachers which reduced the need for substitute teachers, less disciplinary issues, fewer hours commuting, and greater blocks of instructional time to complete class assignments.

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Although Colorado surveys seem to suggest that school districts and families participating in a modified schedule have overcome the most commonly voiced challenges, they remain considerations for districts implementing a modified schedule. Common challenges include maintaining students' attention during the extended day, a longer day for young students, especially when they have long commutes, the unpopularity of less pay for cafeteria staff and bus drivers, the impact on extracurricular events, and the perception of "giving a day off" (although instructional time is the same) when national and state education goals emphasize raising student achievement.

Research showed that the switch from the traditional Monday through Friday school week to a four-day school schedule raised many questions and concerns related to family involvement. During initial discussions, there was considerable skepticism, anger, and fear. However, after implementation of a modified school schedule and with the passing of time, all studies showed improvement in attitudes and lessening of fear.

The Quinton Public Schools (Oklahoma Unified School District) has been using the four-day school week for almost two years. During the first year of implementation, the schools conducted a survey with a response rate of 70%. A total of 75% of parents was in favor of the four-day schedule, 10% was indifferent and the remaining 15% wanted to return to the five-day schedule. During the second year of implementation, another survey was conducted with an 80% response rate. A total of 89% of parents was in favor of the four-day schedule, 5% had no preference, and the remaining 6% wanted to return to a five-day schedule. The second survey included students in grades 7-12. Most of the students preferred the four-day school week because it allowed those with jobs to extend their hours. In addition, some students were concurrently enrolled in college courses. They were able to attend class in-person rather than virtual attendance only. Reasons parents gave for supporting the four-day school week included, increased family time and more time for students to rest.

RECOMMENDATIONS & IMPLEMENTATION STRATEGIES

The majority of articles showed little evidence of an overall impact on academic performance positive or negative. Most of the qualitative data reviewed related to food insecurity and academics. According to Feeding America, “Studies have found that food insecurity has been associated with health problems for children that may hinder their ability to function normally and participate fully in school and other activities.” Data and research papers related to juvenile crime and a four-day school week were limited. In addition, the literature revealed no information relative to special populations or urban and suburban districts.⁴¹

Recommendations include:

- Identify specific criteria to evaluate policy specific to areas of interest;
- Compile information about four-day school weeks, including other districts’ or other districts in contiguous states’ experiences with four-day school weeks;
- Conduct research on the actual practice and examine existing models. Collect data for Oklahoma Schools that have implemented the four-day school week and similar schools that have not;
- Communicate with parents, community members, teachers and other affected stakeholders (i.e. students) about the potential change. Carefully consider input and feedback before making the switch;
- Give careful consideration to a cost-benefit analysis of how four-day school schedules impact students, including those with special learning needs (e.g., English as Second Language, low-literacy, justice-involved youth, etc.);
- Increase quality Out of School Time (OST) programs through community partnerships, specifically around addressing food insecurity; and

⁴¹ Davy, Wendy L., and Hall, Padric R. Four-Day School Week Literature Review, *Analysis of Available Literature on the Impact of a Four-day School Week*. Peoria Unified School District. February 22, 2015.

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- Collaborate broadly with communities to identify priority programs, policies, and strategies to address child hunger.

REPORTING

For purposes of this HIA, a structured written report is available for public viewing on the Oklahoma State Department of Health (OSDH) website at www.ok.gov/health. Electronic copies of HIA reports are available upon request to the OSDH, Office of Partner Engagement. Office of Partner Engagement staff are also available upon request for discussions and dialogue.

MONITORING AND EVALUATION

Although there are many scholarly articles about the pros and cons of the four-day school week, there is a lack of comprehensive research available on the practice. Stakeholder groups and decision makers could conduct further research to track and document relevant impacts of the four-day school week. Further inquiry is needed to identify potential indicators of relevant health determinants and health outcomes that a four-day school schedule is likely to impact.

Additional ideas for potential future efforts of stakeholder groups and decision makers include engagement with teachers, parents, students, and district administration using interviews and focus-group questions to build on existing HIA findings. A repository of available peer-reviewed literature, policy briefs, case studies, research and place-based information (e.g. states using this modified school schedule), and relevant potential health impacts (both positive and negative) for which there is research-based evidence could be beneficial to stakeholder groups. In addition, information on schools and districts currently using or planning to switch to the four-day school week could be collected.

Education has a direct link to health. The social determinants that affect health (e.g. food insecurity, housing stability, income, crime) also affect education outcomes. It is well-documented in the literature that educational achievement is an area where significant health

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disparities exist. Collecting data on health determinants and health indicators when conducting school-level needs assessments could help to inform decision making.

CONCLUSION

This rapid HIA examined the impact of the four-day school week on *student academic performance, food insecurity, and juvenile crime*. Although the number of days is reduced in a four-day school week, the total number of instructional hours per day is increased so students are attending school for the same amount of time as those attending traditional Monday through Friday school schedules. Evidence from an extensive review of existing literature, a study conducted by the Oklahoma State Department of Education, and anecdotal information from key informant interviews showed generally mixed but mostly inclusive findings. However, there may be a need to further explore the distinctions inherent within the four-day school week.

From a policy perspective, the decision to switch to a four-day school week should be made on the basis of a cost-benefit analysis of the actual practice in addition to potential impacts on health. Before switching to a four-day week, school districts should research the impact on student academic achievement, food insecurity, and juvenile crime. More importantly, parents, students, community stakeholders, and others affected by the decision should be involved early and regularly, to the greatest extent possible to help mitigate any unintended consequences of the decision. Hunger and food insecurity are significant issues of concern in Oklahoma. Therefore, it is crucial that safety net programs (e.g. food pantries, food banks, child nutrition programs, summer feeding programs) also have a participatory role in decision making prior to switching from a traditional five-day school schedule.

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